

REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claim Amendments

Claim 1 has been amended to recite that the non-woven fabric is a needle-punched non-woven fabric, based on claim 8 and page 9, lines 9-11 of Applicants' specification.

Claim 8 has been cancelled, without prejudice or disclaimer.

No new matter has been added to the application by these amendments.

Patentability Arguments

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Features of Applicants' Invention

Applicants' claim 1 recites a sound-absorbing material, wherein:

(a) a non-woven fabric with a mass per unit area of 150 to 800 g/m² and a bulk density of 0.01 to 0.2 g/cm³ and (b) a surface material with an air permeability of not more than 50 cc/cm²/sec measured according to JIS L-1096 are layered,

(a) the non-woven fabric is a needle-punched non-woven fabric, and

(b) the surface material is a spun bonded non-woven fabric or a wet-laid non-woven staple fabric.

As described below, none of the cited references, alone or in combination teach or suggest the sound-absorbing material of Applicants' claims.

By using the recited non-woven fabric (a) and surface material (b) together, a sound-absorbing material which is excellent in sound absorbency (e.g., normal incidence sound absorption coefficients, sound absorption coefficients in reverberation chamber), flame retardancy, recyclability, and workability is obtained. (Please see page 8, lines 17-21 of Applicants' specification.)

Rejections Under 35 U.S.C. § 103(a)

Tanaka (JP 2003082568) in view of Enohara (JP 2003049351)

The rejection of claims 1, 8, 16 and 20-23 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka (JP 2003082568) in view of Enohara (JP 2003049351), is respectfully traversed.

The Position of the Examiner

The Examiner takes the position that Tanaka discloses a sound absorbing material wherein (a) a non-woven fabric with a mass per unit area of 150 to 800 g/m² and having a bulk density and (b) a surface material, wherein the surface material is a spun bonded non-woven fabric or a wet-laid non-woven staple fabric. The Examiner admits that Tanaka does not disclose the bulk density of 0.01 to 0.2 g/cm³ or where the surface material has an air permeability of not more than 50 cc/cm²/sec according to JISL 1096.

The Examiner states that Enohara discloses a sound absorbing material having a bulk density of 0.01 to 0.2 g/cm³, and an air permeability of not more than 50 cc/cm²/sec according to JISL 1096. The Examiner asserts that at the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Enohara to use an acoustic material with such mass limitations and air flow resistance with the laminate of Tanaka to have a sound absorbing material with excellent sound reduction and a light weight.

Applicants' Arguments

Applicants respectfully disagree with the Examiner's position for the following reasons.

Tanaka discloses a sound absorption material excellent in moldability, wherein (A) a nonwoven fabric having a mass per unit area of 20 to 200 g/m² and including ultrafine fiber having a fiber diameter of not more than 6µm and (B) a staple fiber nonwoven fabric having a mass per unit area of 50 to 2000 g/m² and a fiber diameter of 7 to 40 µm are laminated and integrated, and 5 to 50% by mass of the staple fiber nonwoven fabric (B) is a thermally adhesive fiber having a melting point of 100 to 190°C (Abstract). It is described in Tanaka that the staple fiber nonwoven

fabric (B) is preferably prelaminated to the ultrafine fiber nonwoven fabric (A) by a needle punch method, and integrated by an air through method (Abstract).

However, as admitted by the Examiner in the Office Action, Tanaka neither discloses nor suggests a non-woven fabric having the bulk density of 0.01 to 0.2 g/cm³.

Additionally, in Tanaka, a needle-punching method is used to laminate the nonwoven fabric (A) and the staple fiber nonwoven fabric (B). However, Tanaka fails to teach or suggest a needle-punched non-woven fabric with a mass per unit area of 150 to 800 g/m² and a bulk density of 0.01 to 0.2 g/cm³, as required by Applicants' claims. Tanaka also fails to teach or suggest that such needle-punched non-woven fabric and a surface material are laminated.

As also admitted by the Examiner in the Office Action, Tanaka fails to teach or suggest a surface material with an air permeability of not more than 50 cc/cm²/sec measured according to JIS L-1096, as required by Applicants' claims.

Therefore, Tanaka clearly fails to teach or suggest Applicants' claimed invention. The Examiner has accordingly relied on Enohara, which is discussed below.

Enohara discloses a high-performance noise absorbing material having high noise absorbing capability in a frequency range of from 1,000 to 4,000 Hz, comprising a polyester fiber nonwoven fabric having an apparent thickness of from 10 to 30 mm formed from a polyester fiber having a fineness of 1.0 to 12 dtex, and a melt-blown ultrafine fiber nonwoven fabric, that is formed mainly from a fiber having a fineness of 1.0 dtex or less, a mass per unit area of from 10 to 100 g/m² and an air permeability, as measured in accordance with JIS L-1096, of from 5 to 50 cc/cm²/sec, laminated on one side of the polyester fiber nonwoven fabric (claim 1). Certainly, Enohara discloses an air permeability of 5 to 50 cc/cm²/sec measured in accordance with JIS L-1096.

However, Enohara discloses on page 2, [0009] of Japanese laid-open patent gazette (page 7, (0009) of the English translation of Enohara) that "The polyester fiber nonwoven fabric of the present invention can also be manufactured by a needle punching method. However, in the case of a nonwoven fabric having a low mass per unit area (less than about 1,000 g/m²), there is a possibility to cause problems regarding maintenance of strength and shape (thickness)".

It is clear from this passage that Enohara warns of problems if a needle-punch nonwoven fabric having a low mass per unit area (less than about 1,000 g/m²) is used. Thus, the teachings of

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Enohara clearly teach away from Applicants' claimed invention, which requires a non-woven fabric with a mass per unit area of 150 to 800 g/m², which is a needle-punched non-woven fabric.

MPEP 2141.02 states that “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).” Thus, the Examiner must consider the teachings of Enohara which clearly lead one of ordinary skill in the art away from Applicants' claimed invention.

As discussed above, the teachings of Tanaka alone fail to teach or suggest the limitations of Applicants' claimed sound-absorbing material. Additionally, the teachings of Enohara fail to remedy the deficiencies of Tanaka, since Enohara clearly teaches away from Applicants' claimed invention.

Thus, the subject matter of independent claim 1, and dependent claims 16 and 20-23 is clearly patentable over the cited combination of references. [Claim 8 has been cancelled.]

Tanaka in view of Enohara,
and further in view of Smith (US 5766745) and Fottinger (US 5279878)

The rejection of claims 2-7 and 14 under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Enohara as applied to claim 1, and further in view of Smith (US 5766745) and Fottinger (US 5279878), is respectfully traversed.

The Position of the Examiner

The Examiner takes the position that Smith discloses where the non-woven fabric is a fabric in which thermoplastic staple fiber and a heat resistant staple fiber with an POI value are intertwined. The Examiner further asserts that Fottinger discloses that LOI values of not less than 25 are desirable in a flame barrier.

Applicants' Arguments

As previously argued in the response filed of April 11, 2008, Smith fails to teach or suggest the surface material recited in Applicants' claim 1.

Additionally, Fottinger fails to teach or suggest the non-woven fabric and the surface material recited of Applicants' claim 1.

Accordingly, neither of these references remedies the deficiencies of Tanaka in view of Enohara, as discussed above. Thus, the subject matter of dependent claims 2-7 and 14 are patentable over the cited references for the same reasons independent 1 is patentable over the cited references.

Tanaka in view of Enohara, and further in view of Bair (US 4957794), Smith and Fottinger

The rejection of claims 10-13 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Enohara as applied to claim 1, and further in view of Bair (US 4957794), Smith and Fottinger, is respectfully traversed.

The Position of the Examiner

The Examiner takes the position that Bair teaches that aramid fibers can be mixed with other fibers and wet laid.

Applicants' Arguments

As previously argued in the response filed April 11, 2008, Bair et al. fail to teach or suggest the surface material recited in Applicants' claim 1.

Accordingly, this reference fails to remedy the deficiencies of Tanaka in view of Enohara, Smith and Fottinger, as discussed above. Thus, the subject matter of dependent claims 10-13 are patentable over the cited references for the same reasons independent 1 is patentable over the cited references.

Tanaka in view of Enohara, and further in view of Sano (JP 2002-182655)

The rejection of claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Enohara as applied to claim 1, and further in view of Sano (JP 2002-182655), is respectfully traversed.

The Position of the Examiner

The Examiner takes the position that Sano discloses an acoustic absorber having a surface material and a base material are the same kind of polymeric fiber.

Applicants' Arguments

Initially, since claim 15 is dependent upon claim 1, the subject matter of claim 15 is patentable over Tanaka in view of Enohara for the same reasons discussed above, regarding claim 1. Sano fails to remedy these deficiencies.

Additionally, as previously argued in the response filed April 11, 2008, Sano discloses on page 2, column 2, line 49 to page 3, column 3, line 7 ([0008]) of Japanese laid-open patent gazette that "In the acoustic absorber according to the present invention, it is necessary to use a surface material consisting of cloth with the mass per unit area of 30g/m² or more and an air permeability of not less than 80 cm³/cm²/sec measured according to JIS L-1096.----If the air permeability is less than 80 cm³/cm²/sec, the sound absorbency performance of the base material cannot be sufficiently effected". Please see the English translation of page 2, column 2, line 49 to page 3, column 3, line 7 of JP '655, which was submitted with the response filed April 11, 2008.

On the other hand, a surface material of the present invention has an air permeability of not more than 50 cc/cm² /sec.

Accordingly, Sano teaches away from the present invention. Thus, the above-rejection should be withdrawn.

Tanaka in view of Enohara, and further in view of Haussling (US 5068001)
and Noxon (US 5035298)

The rejection of claims 17-19 under 35 U.S.C. § 103(a) as being unpatentable over Tanaka in view of Enohara as applied to claim 1, and further in view of Haussling (US 5068001) and Noxon (US 5035298), is respectfully traversed.

The Position of the Examiner

The Examiner takes the position that Haussling discloses an acoustic laminate structured such that a non-woven material has a surface material on both sides thereof and is formed into a three dimensional structures having complex curves. The Examiner further states that Noxon discloses the use of three dimensional shapes in sound absorbing panels, including cylinders.

Applicants' Arguments

Neither Haussling nor Noxon teaches nor suggests the non-woven fabric and the surface material used in Applicants' present invention.

Accordingly, neither of these references remedies the deficiencies of Tanaka in view of Enohara, as discussed above. Thus, the subject matter of dependent claims 17-19 are patentable over the cited references for the same reasons independent 1 is patentable over the cited references.

Conclusion

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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